

REMARKS

I. Status of the Claims

Claims 36-43, 45-47, 49, 51, 52 and 54-68 were pending. Claims 36, 40, 43, 45, 47, 49, 52, 54, and 59 have been amended as shown above. In particular, the term "mammal" in claims 36, 43, 45 and 59 has been replaced with the term "subject" as found throughout the specification as filed, for example in paragraph [00200]. Claim 40 has been amended as suggested by the Examiner to provide clear antecedent basis for the term "defect." Claim 45 has been amended to specify that the imaged cartilage includes normal and diseased cartilage, as described throughout the specification as filed. Claim 47 has been amended as suggested by the Examiner to correct a typographical error. Finally, claim 49 has been amended to recite specific biochemical components, as described in previous claim 54, which has also been amended accordingly. Thus, claims 36-43, 45-47, 49, 51, 52 and 54-68 are pending as shown above.

In view of the foregoing amendment and following remarks, Applicants respectfully requested reconsideration of the application.

Applicants note with appreciation that 57-59 are allowed and that if written in independent form, claims 37-41 would be allowable.

II. Information Disclosure Statement

Applicants note with appreciation return of the initialed and signed 1449 forms, indicating the references have all been considered.

III. Drawings

The Office Action indicates that drawings should be submitted in place of the photographs of FIGs. 9A-9C, 14A, 14B, 15A, 15B and 18A. (Office Action, page 2, citing MPEP 608.02).

Applicants note that, the M.P.E.P. § 608.02 sanctions the use of photographs in certain instances:

The Office will accept photographs in utility and design patent applications, however, if photographs are the only practicable medium for illustrating the claimed invention.

With regard to the drawings at issue, Applicants submit that black and white photographs of living subjects are in fact that best of way of illustrating how to perform the claimed methods on living subjects. Accordingly, Applicants request that the objection to the drawings be withdrawn.

IV. Specification

The specification was objected to for failing to describe each figure individually. In addition, the term "living mammal" as found in the amended claims was alleged to not be supported by the specification. (Office Action, pages 2-3).

Applicants have amended the Brief Description of the Drawings above as suggested by the Examiner. Accordingly, the objection to this portion of the specification has been obviated.

With regard to the alleged lack of antecedent basis in the specification for the term "living mammal," Applicants note as a threshold matter that claim 1 is not pending. Therefore, it is assumed that the Office Action referred to claim 36, as amended previously. In addition, Applicants are unsure as to whether the objection is to the term "living" or the term "mammal."

In any event, the objection to the term "mammal" has been obviated by the foregoing amendment to the term "subject." *See, e.g.*, paragraph [00200] for the specification. If the objection was to the term "living," Applicants respectfully submit that this objection raises form over substance. It is clear from M.P.E.P. § 608.01(o) that terms do not necessarily have to appear verbatim in the specification as filed in order for the term to be acceptable:

The meaning of every term used in any of the claims should be apparent from the descriptive portion of the specification with clear disclosure as to its import; and in mechanical cases, it should be identified in the descriptive portion of the specification by reference to the drawing, designating the part or parts therein to which the term applies. A term used in the claims may be given a special meaning in the description. No term may be given a meaning repugnant to the usual meaning of the term.

Usually the terminology of the original claims follows the nomenclature of the specification, but sometimes in amending the claims or in adding new claims, new terms are introduced that do not appear in the specification. The use of a confusing variety of terms for the same thing should not be permitted.

In other words, there is no requirement that a claim term appear exactly in the specification. In the pending case, it is plain, for instance, in paragraphs [0090] through [0097] that images are taken from living patients, either while they are walking, moving or still. Indeed, not only would a cadaver not be referred to as "subject," it would be useless to determine cartilage deterioration over time in a non-living patient. Thus, when properly viewed as a whole, it is clear that the specification as filed provides ample antecedent basis for the term "living" and withdrawal of this objection is in order.

IV. Claim Objections

Claim 40 was objected to as allegedly lacking antecedent basis and claim 47 was objected for a typographical error. (Office Action, page 3).

Applicants thank the Examiner for the suggested changes and have incorporated those changes by amendment herein. Accordingly, the objections have been obviated.

VI. Rejection Under 35 U.S.C. § 102(a)

Claims 36, 42, 43 and 61-64 were rejected as allegedly anticipated by Eckstein et al. Office Action, page 3.

Applicants request clarification as to which Eckstein reference is cited by the Office. As indicated in the rejection, the reference contains pages 594 and 597. However, of the 3 Eckstein references submitted in the IDS (references 12 to 14), none include such page numbers. Thus, Applicants assume the Office is referring to reference C33 in the IDS submitted December 16, 2002, which does contain these page numbers.

In any event, Eckstein (1998) *AJR* 170:593-597 does not anticipate the subject matter of any of pending claims 32, 42, 43 or 61-64. These claims are all drawn to methods of assessing the change in cartilage over time by determining a degeneration pattern in the cartilage. In

contrast, Eckstein teaches, on page 594, left-most column, 1st full paragraph, that the methods were applied to subjects with no degeneration:

[e]ight volunteers who had no muscoskeletal disorders or internal derangements of the knee were examined.

Thus, Eckstein fails to describe or demonstrate construction of a degeneration pattern as set forth in the pending claims. Furthermore, the paragraph on page 594 of Eckstein cited on page 3 of the Office Action does not, as alleged by the Office, in any way teach converting the transferred image to a degeneration pattern. Instead, this paragraph of Eckstein deals entirely with construction of a 3D image from each subject and teaches nothing about comparing images from the same subject over time to create a degeneration pattern.

In sum, because Eckstein fails to teach elements of pending claims 32, 42, 43 and 61-64, this reference cannot anticipate these claims and withdrawal of the rejection is respectfully requested.

VII. Rejections Under 35 U.S.C. § 102(b)

Claims 49, 51 and 52 were rejected as allegedly anticipated by U.S. Patent No. 5,320,102 (hereinafter "Paul"). Office Action, page 4). In support of these rejections, it is alleged that Paul teaches "a method of making a three-dimensional map of joint cartilage (col. 4, lines 31-34; col 5, lines 28-32) of a human knee joint including measuring detectable biochemical components and mapping the amounts of the biochemical components in three dimensions. .." (Office Action, page 2).

Applicants traverse the rejections and supporting remarks.

In order to be an anticipatory reference, the single reference cited by the Office must disclose each and every element of the claims. *Hybritech v. Monoclonal Antibodies*, 231 USPQ 81 (Fed. Cir. 1986). Moreover, the single source must disclose all of the claimed elements arranged as in the claims. *See, e.g., Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913 (Fed. Cir. 1989).

Paul fails to disclose each and every element of pending claims 49, 51 and 52. Paul is

directed entirely toward diagnosing proteoglycan deficiency in cartilage by quantifying pixel intensity of a two-dimensional MRI. In contrast, pending claims 49, 51, and 52 are drawn to methods of making three-dimensional cartilage maps from the information does not include information such regarding proteoglycan content. Thus, Paul fails to disclose or suggest the claimed methods. Accordingly, Applicants request that the rejection be withdrawn.

VIII. Rejections Under 35 U.S.C. § 103(a)

Claims 45-47 and 65-68 were rejected as allegedly obvious over Eckstein in view of U.S. Patent No. 5,427,099 (hereinafter "Adams"). (Office Action, pages 4-6). In addition, claims 62 and 63 were rejected as allegedly over Eckstein. (Office Action, page 6). Eckstein was cited as above. Adams was cited for teaching use of external markers in MR imaging.

Pending claims 45-47 and 65-68 are drawn to methods of assessing cartilage degeneration over time by imaging normal and diseased cartilage at two different time periods. As noted above, Eckstein does not teach or suggest methods in which the imaged cartilage includes any defects. Rather, the authors specify that the subjects had no internal derangements of the knee. Accordingly, there is no combination of Eckstein and Adams that can render these claims obvious and withdrawal of the rejection is in order.

For their parts, claims 62 and 63 depend from claim 36 and, as such, require not only that width of cartilage be determined but, in addition, that a degeneration pattern of the cartilage be created over time. For the reasons detailed above, Eckstein does not teach or suggest how to create such a degeneration pattern.

Thus, Eckstein does not, alone or in combination with Adams, render claims 45-57, 65-68 or 62-63 obvious and withdrawal of the rejection is respectfully requested.

CONCLUSION

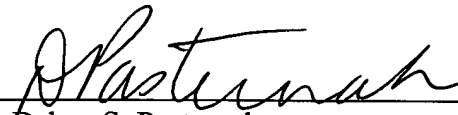
In view of the foregoing amendments and remarks, Applicants submit that all of the pending claims are in condition for allowance and request early notification to that effect.

Should the Examiner have any further questions, Applicants request that the undersigned be contacted at (650) 493-3400.

Respectfully submitted,

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By: _____



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